

## Runway Incursions, Flight Safety and Human Factors

The NTSB has identified runway incursions as one of its top ten safety concerns, and the FAA is making runway safety a top priority. Key Dismukes was invited to make a presentation on human factors and flight safety at the FAA Southern Region Runway Safety Summit in June and the Northwest Region Runway Safety Summit in July. Slides from that talk—Multitasking, Memory Failures, and a Perspective on Human Error have been posted on our publications/presentations page.

The great majority of runway incursions are attributed to human error, especially the errors of pilots, but also the errors of controllers and vehicle drivers. Unfortunately, this fact is sometimes misinterpreted. Too often, organizations have assumed that when skilled human operators make mistakes performing tasks within their skill set it is because of some deficiency on the part of the operator—he or she is assumed to lack skill, vigilance, or conscientiousness.

This assumption is largely mistaken and undercuts efforts to maintain and improve safety. A large body of scientific research reveals that most errors made by skilled operators result from shortcomings in the overall system in which operators work—in particular, failure to anticipate dynamic interactions among the many factors that determine the performance of the system and its components. Skilled operators frequently compensate for

system shortcomings, but they cannot be expected to do so in every instance. Organizations should acknowledge the inherent tension between their goals of productivity (e.g., on-time arrival at destination airports) and safety, and insure that their policies, procedures, training, and checking provide adequate balance between those goals, and that both the implicit and explicit rewards to operators reflect that balance. (For example, calling a captain into the chief pilot's office to justify going around from an approach undercuts adherence to stabilized approach criteria.)

One of most common errors of controllers involved in runway incursions is forgetting to perform an intended action (e.g., releasing an aircraft to take off that is holding on the departure runway) or forgetting implications of the current situation for actions that must be taken later. This talk summarizes what scientists understand about why even the most conscientious of controllers and pilots are vulnerable to this sort of memory error.

The talk concludes with suggestions for ways that individuals and organizations can reduce vulnerability to errors and accidents.